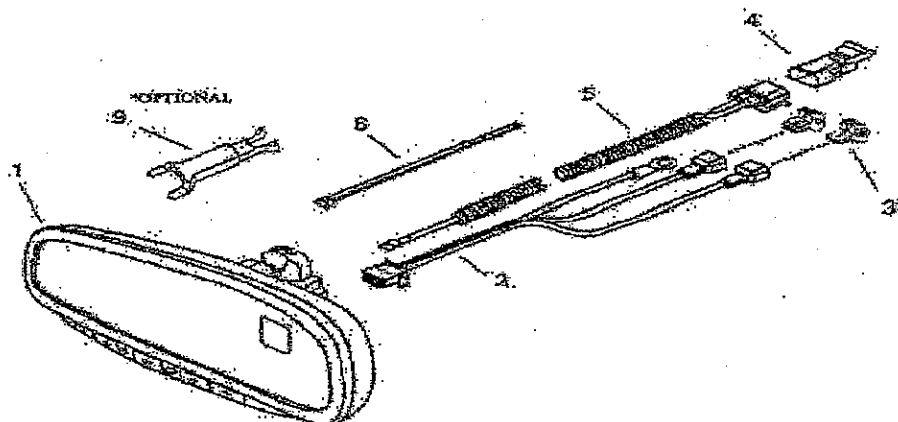


## Gentex TO Corporation Installation Instructions

**KIT CONTENTS:**

Item	Qty	Part Number	Description
1	1 of the following	GEN-K2	7 Pin - Night Vision Safety (NVS) Mirror
		GEN-K3	7 Pin - NVS Mirror w/Map Lamps
		GEN-K5	7 Pin - NVS Mirror w/Compass
		GEN-K21	7 Pin - NVS Mirror w/Compass and Temperature
		GEN-K31	7 Pin - NVS Mirror w/Compass, Temperature and Map Lamps
		GEN-K41	10 Pin - NVS Mirror w/HomeLink <sup>®</sup>
		GEN-K42	10 Pin - NVS Mirror w/HomeLink <sup>®</sup> and Map Lamps
		GEN-K45	10 Pin - NVS Mirror w/HomeLink <sup>®</sup> and Compass
		GEN-K51	10 Pin - NVS Mirror w/HomeLink <sup>®</sup> , Compass, and Temperature
		GEN-K62	10 Pin - NVS Mirror w/HomeLink <sup>®</sup> , Compass, Temp. & Map Lamps
2	1 of the following		7 Pin Harness Assembly, w/2 Wires - Ignition and Ground
			7 Pin Harness Assembly, w/3 Wires - Battery, Ignition and Ground
			10 Pin Harness Assembly, w/3 Wires - Ignition, Battery, and Ground
3	2		T-Tap Connectors (1 Red 18-22 AWG, 1 Blue 14-18 AWG)
	4	HomeLink/ Map Lamps	T-Tap Connectors (2 Red 18-22 AWG, 2 Blue 14-18 AWG)
4	1	50-9RT1H832	Temperature Sensor only w/ Temperature Mirror
5	1		Harness Assembly, Temperature Sensor only w/ Temp. Mirror
6	5		Short Tie Wraps (All Mirrors)
	5		Long Tie Wraps (Temperature Mirrors)
7	1		Installation Instructions
8	1		User Guide
9	1		<b>**OPTIONAL**</b> (Not Included in Kit) Wire Cover



TOOLS REQUIRED:			
Safety Glasses	Utility Knife	Pliers	#2 Phillips
Clean Rag	Electrical Tape	4mm Flat Screwdriver	Screwdriver
DC Voltmeter	Fish Wire (Coat Hanger)	#T20 Torx Driver	Flashlight

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#### INSTALLATION PRECAUTIONS / NOTES:

- Do not use excessive force when removing OE mirror from windshield.
- Do not push fish wire too far into dash to avoid damage to existing components.
- Do not place wire harness against objects with sharp edge that may cause electrical short.
- On vehicles equipped with "A" pillar air bag, verify mirror harness path remains clear of air bag. Harness should follow, and be tied to, existing OEM wiring with tie wraps.
- Verify that power harness path will not interfere with brake, clutch, emergency brake or air bag operation. Use tie wraps to hold the wiring away from critical locations.



#### 1 - Preparation

Perform the following pre-installation steps:  
Place kit components on a clean, padded surface.  
Record your programmed radio stations.

3) Remove the following components.

(Figure 1)

a) Loosen driver side front step plate (Fig. 1).



b) Remove driver's side "A" pillar grab handle, (Fig. 2) if equipped.

c) Remove driver's side "A" pillar trim piece. (Fig. 2)

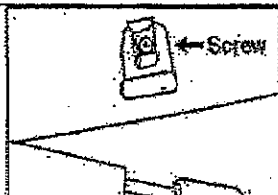
d) Loosen driver side sun visor screws and sun visor clip hook. (Fig. 3)

e) If necessary, use a fiber stick to remove instrument

panel side panel. (Fig. 4)

(Figure 2)

#### 2 - Removal of OE Rearview Mirror



Remove OE rearview mirror from windshield: (NOTE: Do not use excessive Force when removing OE mirror from windshield. The window button may separate from the windshield or the windshield could break.) If there's not an obvious screw to loosen the mirror, follow these procedures:

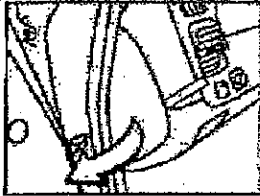
1) Insert the end of 4mm flat screwdriver, into the opening at the

bottom of the mirror mount at the windshield.

- 2) Gently lift the screwdriver away from the windshield to release the

(Figure

3)



tab between the button and the mirror

mount.

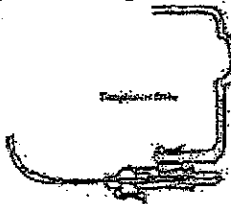
- 3) Assist removal by wiggling the mirror side to side at the same time as lifting the mirror up off the mounting button attached to the glass.

### 3 - New Mirror Installation

Install NVS mirror on windshield:

- 1) Holding the mirror assembly by the bracket tube and mirror head, slide the mirror bracket over the mirror button on the windshield.

(Figure 4)



- 2) Using a #T20 Torx, tighten the screw in the mirror mounting bracket. Tighten to 1.3 ft-lbs. (17.8 kg-cm).

(Figure 5)

### 4 - Temperature Sensor Harness Installation

(Disregard this section if you have a K2, K3, K5, K41, K42 or K45 Mirror)

- 1) Mount Temperature Sensor:



Remove splash guard panels, if necessary, to gain access to the area behind the front bumper.

From inside of the engine compartment, route sensor end of temperature harness down in front of radiator to the area behind the

(Figure 6)

Five arrows indicate tie wrap locations

front bumper.

- c) Put a light coating of waterproof grease on the gray seal of the sensor connector. Plug the sensor securely onto the sensor connector.



Place the sensor between the vehicles frame rails and on the lower lip of the bumper or grille opening. Try to keep it lower than the radiator.

- e) With sensor above bumper edge, slide clip over edge of bumper as shown in photo. (Fig. 5)  
Replace splash guard.

(Figure 7)

- 2) Route the temperature sensor harness to rubber grommet in dash wall;

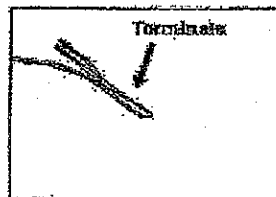


a) Behind the battery, and along the driver's side fender. (Fig. 6)

b) To rubber grommet in the firewall or the rubber boot of the steering column. (Fig. 7)

- 3) Prepare the rubber/boot grommet to passenger compartment

(Figure 8) a) From inside vehicle, cut a small "X" slit through



grommet/boot as shown. (Fig. 8)

\*Do not slice outer sealing lip of the grommet.

- b) Insert fish wire thru the X slit into engine compartment.

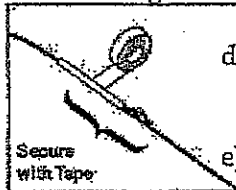
1) Bend approximately 3" of harness at terminal end.

2) Using electrical tape, secure fish wire to harness and sleeve to harness as shown. (Fig. 9 & 10)

- 3) Pull fish wire/harness thru grommet.

(Figure 9) 4) Remove tape and sleeve. NOTE: Terminals bend easily.

- c) Inside the engine compartment, leave extra wire for drip loop in front of dash grommet.

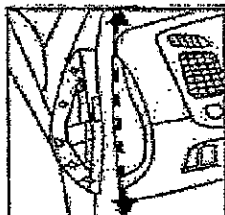


d) Apply silicone sealant around the wire and X cut in boot to seal the opening.

e) Loosely tie-wrap the temperature sensor harness to existing

(Figure 10)

vehicle harness in engine compartment/fender well area (5 places). (Fig. 6)



f) Be sure to keep wires away from moving parts such as steering and brake mechanisms.

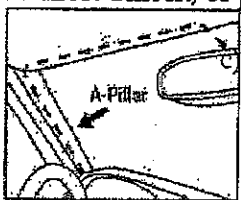
g) Keep wires away from extremely hot engine components.

4) Inside the passenger compartment, route temperature sensor harness from area below dash to NVS mirror.

- a) Route the temperature harness up and along the edge of the

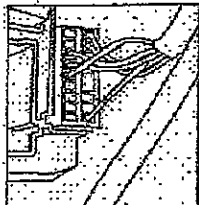
(Figure 11) dash to the base of the drivers "A" pillar. (Fig. 11)

b) Run wire up "A" pillar next to OEM wiring so that it will not affect trim fit, or pinch wire, that may cause a short in the wiring. (Fig. 12)



Continue to route temperature sensor harness, under front edge of headliner, to the NVS mirror. Temporarily leave enough wire to reach the NVS mirror. (Fig. 12)

#### 5 - Connect Ignition, B+ Constant, and Ground



(Figure 12)

\*Note: You will need to find a source for a key switched +12 volts in the accessory and run position. For the

HomeLink® and/or Map Lamp model mirrors, you will also need to find a source for a continuous +12 volts. Your car dealer may sometimes advise readily available locations for connecting to these power sources.

\*A Tip: The cigarette lighter or power port receptacle may be a source of

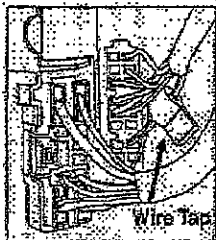
such

a switched or continuous +12 volts, depending on the make of the vehicle.

1 Locate ignition wire:

a) Using a multi-meter, find a wire exiting fuse block (Fig. 13) that tests 12 volt positive and is controlled by the ignition switch.

(Figure 13)



Make sure this 12 volt source remains as you turn on each accessory on the vehicle. Some vehicles circuits will show +12 volts until a certain accessory is turned on, then the +12 volts will go to 0 volts. This power source must turn off only when the vehicles ignition is in the OFF position. (Label this

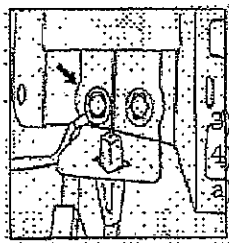
wire IGNITION)

NOTE: If mirror remains on at all times, it could eventually drain the car's battery.

2 Locate constant wire. (HomeLink® / Map Lamp models)

a) Power source - Using a multi-meter, check for a wire at the fuse block that tests positive for +12 volts. The power must be present

(Figure 14)



when the ignition is in the OFF position. (Label this wire CONSTANT)

Disconnect the battery.

Connect Ignition Wire:

Apply the appropriate size wire tap (Item 3) to this wire by centering wire in middle of metal conductor blades of wire tap. (Fig. 14)

b) Using pliers, close 2 sides of appropriate size wire tap onto wire.

c) Locate the Power Harness Assembly (Item 2).

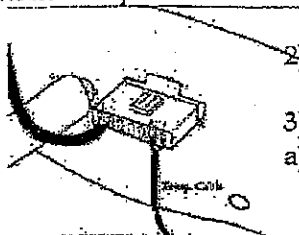
d) Insert the male spade terminal of the ribbed black power harness wire into the opening of the "ignition" labeled wire tap.

(Figure 15)

5. Connect Constant Wire (HomeLink® / Map Lamp models):
  - a) Apply the appropriate size wire tap (Item 3) to this wire by centering wire in the middle of the metal conductor blades of the wire tap. (Fig. 14)
  - b) Using pliers, close 2 sides of the appropriate size wire tap onto wire.
  - c) Insert the male spades terminal of the black w/white stripe power harness wire into the opening of the "constant" labeled appropriate size wire tap.
6. Connect Ground Wire:
  - a) Remove the bolt form behind the parking brake release handle.
  - b) Install the ring terminal over the bolt and reinstall the bolt. (Fig. 15)

#### 6 - Completing Temperature Harness Installation (Only mirrors equipped with the temp. feature)

- 1) Route the power harness along the edge of the dash to the base of the drivers "A" pillar. (Fig. 11)



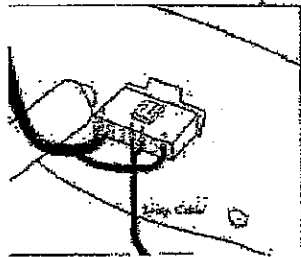
- 2) Continue to route harness upward. Do not plug connector to mirror at this time.

- 3) Connect temperature sensor harness to power harness:
  - a) For 7 pin mirror connectors:

- 1) If there are only 2 wires already connected to the 7 pin (Fig. 16A) mirror connector, insert one of the temperature

harness wires into pin 7 of the 7 pin connector and the other into pin 6.

(Figure 16A)

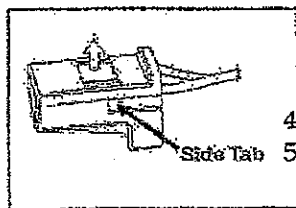


- 2) If there are 3 wires already plugged into the 7 pin (Fig. 16B) mirror connector, insert one of the temperature harness wires into pin 4 and the other into pin 5.

- b) For 10 pin mirror connectors:

- 1) Using a 4 mm flat screwdriver, pry the side tabs of the 10 pin connector to release the white lock tab. Raise the lock tab as shown. (Fig. 17A)

- 2) Insert either terminal from the temperature sensor harness into the rear of the 10 pin connector at vacant pin location 1.



Insert the other into pin 2. (Fig. 17B)

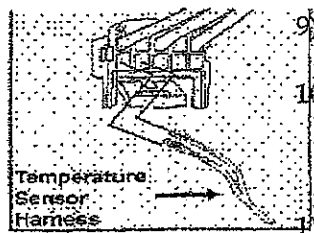
- 4) Plug the connector into the back of the NVS mirror.
- 5) To conceal wires leading into back of NVS mirror, place harness

into groove of **\*\* optional\*\*** wire cover and attach **\*\* optional\*\*** wire cover to mirror base. Slide upper portions of **\*\* optional\*\*** wire cover up to headliner so the "forks" are held by the headliner.

- 6) Tuck the remaining harness between the headliner and the roof.

- 7) Before tightening any wires, verify that the mirror has full rotation.

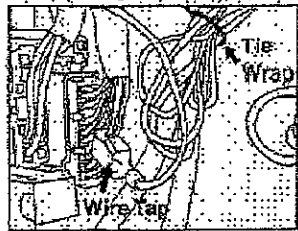
(Figure 17A) 8) Use tie wraps to bundle excess wire and tie to OE harness. (Fig. 18)



- 9) Use tie wraps to fix temperature sensor and power harness on "A" pillar (3 places).
- 10) Make sure that the harness is routed around and away from steering components and pedal assemblies.

### 7 - Testing

- 1) Reconnect the negative battery cable.
- 2) Turn the ignition switch to



ON.



- 3) With the vehicle in a fairly well lit area, perform the following:
  - (Figure 18) a) Make sure the auto-dimming feature of the mirror is active. Auto-Dimming is enabled when the green LED is on. Refer to the instructions on the hangtag if auto-dimming needs to be enabled.
  - b) Cover the forward-looking photocell located on the back side of the mirror with your finger or a piece of black tape. Now shine a flashlight on the rear facing photocell next to the green LED.
  - c) After a few seconds, the mirror will begin to darken (time may vary with ambient light levels).
  - d) Remove finger or tape from the forward photocell and turn off the flashlight. The mirror will begin to un-dim.
  - e) If you installed a mirror with compass and temperature, make sure the display is illuminated. A "C" may show in the compass segment.
  - f) Confirm the mirror is displaying an accurate temperature reading.
  - g) If you installed a mirror with Map Lamps, make sure the Map Lamps can be turned on and off properly.
  - h) Push each HomeLink (Y) switch one at a time and verify that the green LED indicator turns red as you push each button.
- 4) Mirror testing is now complete.

### 8 - Compass Calibration

Note that the K2 & K3 NVS Mirror needs no further calibration.

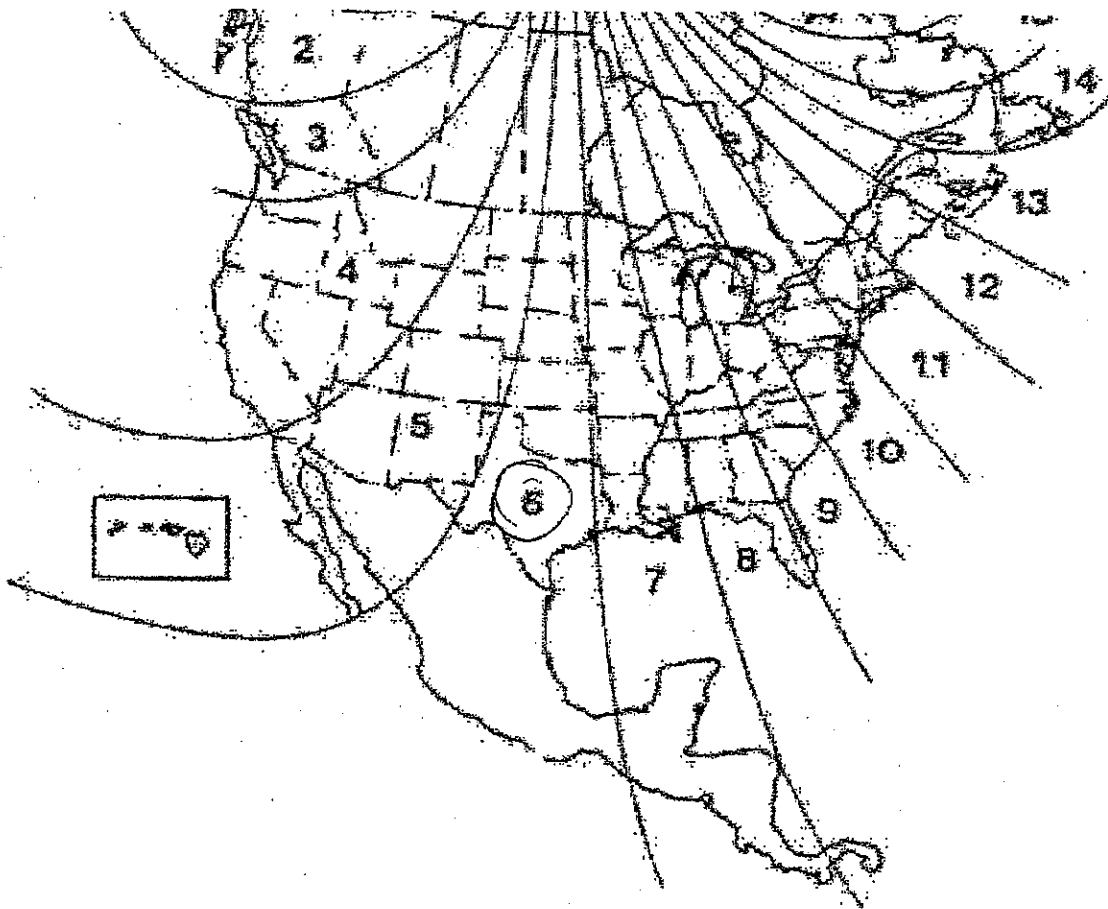
- 1) K5 and K21 Mirrors:
  - a) **Zone Variation:** This compass must be set to compensate for the variation between true north and magnetic north. To set variation:
    - 1) Turn ignition on.
    - 2) Using the map, (Fig. 19), to find your geographic location, note the zone that you are in.
    - 3) To select zone, push in the Comp. switch for 3 seconds until the zone selection comes up. Release, then toggle until correct zone is found and release switch. After 5 seconds of no activity, display will return to normal temperature reading.
  - b) **Compass Calibration:** This compass automatically calibrates itself while the vehicle

vehicle's compass headings become inaccurate, the compass can be manually calibrated by:

- 1) Turn ignition on.
  - 2) Zone variation needs to be changed for use in different areas of the country.
  - 3) To re-calibrate, hold the **N** button for 6 seconds until "CAL" is displayed. Drive your vehicle in at least 3 circles, allowing 45 seconds to complete one circle.
- 4) K62 Mirrors:
- a) **Zone Variation:** This compass must be set to compensate for the variation between true north and magnetic north. To set:
    - 1) Turn ignition on.
    - 2) Using the map, (Fig. 19), find your geographic location, note the zone that you are in.
    - 3) To select zone, push (mirror icon) button for 3 seconds and release when  the "Z" is illuminated on display. Toggle the button until correct zone is displayed. After 5 seconds of no activity, the zone will be stored in memory.
  - b) **Compass Calibration:** This compass automatically calibrates itself while the vehicle is driven as your route takes you in complete circles. Therefore no calibration should be required, though it may take up to an hour. A quicker method is listed below. If the vehicle's compass headings become inaccurate, the compass can be manually calibrated by:
    - 1) Turn ignition on.
    - 2) Zone variation needs to be changed for use in different areas of the country.
    - 3) To re-calibrate, hold the  button for 6 seconds until "CAL" is displayed. Drive your vehicle in at least 3 circles, allowing 45 seconds to complete one circle.







(Figure 19)

## 9 - Operation


### 1) K2 Mirror:

#### a) Mirror Switch Functions:

- 1) Push Auto side of switch to turn Auto Mirror On. The green LED light will be on.
- 2) Push Off side of switch to turn Auto Mirror Off. The green LED light will go off.
- 3) Reset to Auto at each ignition turn on.

### 2) K3 Mirror:

#### a) Mirror Switch Functions:

- 1) Push IO switch to turn the NVS auto-dimming on or off as indicated by the green LED. Each time the key is turned on, the NVS will default to on.
- 2) Push each map switch button  to turn on/off the indicated map lamp.

### 3) K5 Mirror:

#### a) Mirror Switch Functions:

- 1) Push Mirror button to turn the auto dimming on or off. Lit green LED means that auto dimming is on. When turned off, dimming will default to on, each time the vehicle is restarted.
- 2) Push compass button momentarily to turn the display off or on. Hold compass button in for 3 seconds to access the Zone menu used for calibration. Hold